SECTION 16130

BOXES

PART 1 GENERAL

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Edit 1.1 to match Project requirements.
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1.1 SECTION INCLUDES

A. Outlet boxes.

B. Junction and pull boxes.

C. Floor boxes.

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Edit 1.2 to match Project requirements. Delete 1.2 except where electrical boxes have unusual requirements.
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1.2 SUBMITTALS

A. Submit the following according to the provisions of Section 01300:

1. Catalog data for each type of product specified.

2. Shop drawings showing details of fabricated products.

1.3 QUALITY ASSURANCE

A. Conform to the requirements of ANSI/NFPA 70, *National Electrical Code*.

B. Furnish products listed and labeled by UL or other approved, nationally recognized testing and listing agency that provides third-party certification follow-up services.

PART 2 PRODUCTS

2.1 COATINGS

A. Provide boxes protected with zinc coating or with treatment of equivalent corrosion resistance using approved alternative treatment, finish, or inherent material characteristic.

B. Provide products for use outdoors with either hot-dipped galvanized finish or zinc electroplate and aluminum polymer coating.

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Edit 2.2 to match Project requirements. Add special boxes as required for corrosive or hazardous locations.
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2.2 OUTLET BOXES

A. For dry locations provide galvanized steel outlet boxes that comply with UL Standard 514-A, ANSI/NEMA OS1, and ANSI/NFPA 70 as to size and construction.

1. For lighting fixture outlets use 4 inch x 1-1/2 inch deep octagonal boxes with fixture stud attachment as required to support fixtures.

2. For flush, wall-mounted outlets in stud walls or above-grade cast-in-place concrete walls, use 4 inch x 1-1/2 inch deep square boxes. Provide deeper boxes or multiple gang boxes as required to fit devices. Provide raised device covers that match the thickness of the wallboard. Provide box supports to prevent movement of the box.

3. For flush outlets in above-grade concrete masonry walls use masonry boxes with conduit knockouts and means to rigidly support box independent of the conduit. Provide boxes with depth suitable for block thickness. Provide multiple gang boxes as required to fit devices.

4. For surface outlet boxes in EMT raceway systems, use 4 inch x 2-1/8 inch deep square boxes. Provide deeper boxes or multiple gang boxes as required to fit devices. Provide square surface covers that match the installed device and have not less than two holes for securing the device to the cover.

5. For surface outlet boxes in rigid galvanized steel or IMC raceway systems,use 4-11/16 square, 2-11/16 inch deep cast malleable iron boxes with threaded hubs. Provide multiple gang boxes as required to fit devices. Provide gasketed cast malleable iron or cast copper-free aluminum covers that match the installed device and have not less than two holes for securing the device to the cover.

B. For damp or wet locations provide outlet boxes that comply with UL Standard 498 and 514, ANSI/NEMA FB1, and ANSI/NFPA 70 as to size and construction. Outlet boxes in below-grade masonry or below-grade cast-in-place concrete walls are considered to be in damp locations.

1. For lighting fixture outlets use 4 inch x 2-1/16 inch deep round cast malleable iron boxes with threaded hubs.

2. For flush or surface wall-mounted outlets, use 4-11/16 square, 2-11/16 inch deep cast malleable iron boxes with threaded hubs. Provide multiple gang boxes as required to fit devices. Provide gasketed cast malleable iron or cast copper-free aluminum covers that match the installed device and have not less than two holes for securing the device to the cover.

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Edit 2.3 to match Project requirements. Add special boxes as required for corrosive or hazardous locations.

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2.3 PULL AND JUNCTION BOXES

A. For dry locations provide galvanized sheet steel pull and junction boxes that comply with UL Standard 50 Type 1 and ANSI/NFPA 70 as to size and construction. Use boxes not less than 4 inches square x 1-1/2 inches deep with screw-secured covers. Provide larger boxes as required by the number and size of conduits and conductors.

B. For damp or wet locations, in conduit runs up to 3/4 inch trade size, provide 4-11/16 square, 2-11/16 inch deep cast malleable iron boxes with threaded hubs and gasketed cast malleable iron or cast copper-free aluminum covers.

D. For pull and junction boxes in damp or wet locations in conduit runs 1 inch trade size and larger use galvanized sheet steel boxes that comply with UL 50 Type 3R and ANSI/NFPA 70 as to size and construction.

E. For flush pull and junction boxes in at-grade or below-grade cast-in-place concrete use outside flanged recessed cover cast iron boxes with hot dipped galvanized finish. Provide gasketed cover of suitable strength for anticipated traffic.

F. For underground pull and junction boxes, use fiberglass reinforced polymer concrete or precast concrete boxes. Box and cover shall be suitable for AASHTO HS-15 wheel loading. Provide logos on cover matching utility in the box.

G. Provide connection point for equipment grounding conductor in each pull and junction box.

H. Refer to Section 16115 for manholes.

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Edit 2.4 to match Project requirements. Delete if not needed.

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2.4 FLOOR BOXES

A. Provide cast iron floor boxes with threaded conduit entrances in floor slabs on or below grade. Floor boxes in suspended slabs may be sheet steel.

B. Provide fully adjustable floor boxes with means of raising cover to be flush and level with the finished floor.

C. Provide brass covers with openings to match device or service installed in the floor box.

D. Provide brass carpet flanges in carpeted areas.

2.5 SMOKE AND FIRE SEALANT

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Edit 2.5 to match project requirements. Use paragraph A if Section 07270 - FIRE STOPPING is included in the project specifications.

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A. Refer to Section 07270 - FIRE STOPPING for smoke and fire sealant products.

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Use paragraphs B and C if there is no FIRE STOPPING specification section.

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B. Provide smoke sealant and fire barrier latex caulk that has intumescent and endothermic properties and has UL Classified system ratings of up to four hours.

C. Manufacturer: 3M, type CP 25WB+ Caulk

PART 3 EXECUTION

3.1 INSTALLATION - GENERAL

A. Electrical boxes are shown on the Drawings in approximate locations unless dimensioned. Verify final location of each outlet box by field measurements and coordination with other trades. Install each box at a location suitable to serve its intended purpose.

B. Install boxes level, plumb and securely mounted.

C. Restore fire resistance rating of walls and ceiling assemblies penetrated by boxes.

1. Use smoke and fire sealant caulk. Install caulk following manufacturer's instructions to restore original fire rating.

2. Request inspection of fire stop installations by the LANL Authority Having Jurisdiction both before and after installation of fire stop materials.

D. Install knockout closures in unused box openings.

3.2 BOX SUPPORTS.

A. Rigidly attach boxes to the building structure.

B. Refer to Section 16190 - SUPPORTING DEVICES.

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Edit 3.3 to match Project requirements.
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3.3 OUTLET BOX INSTALLATION

A. Install outlet boxes with centers at the following heights unless noted otherwise on the Drawings:

1. Receptacle, telephone and data outlets -- center 18 inches above finished floor.

2. Receptacle, telephone and data outlets at lab benches and counters -- center 44 inches maximum above finished floor; coordinate locations to be above, or completely within, bench and counter backsplashes

3. Light switches -- center 42 inches above finished floor and within 6 inches of door frame.

4. Thermostats -- center 42 inches above finished floor.

5. Wall mounted emergency lights -- 80 inches above finished floor or 12 inches below the ceiling, whichever is lower.

6. Fire alarm audible/visible alarm devices -- center of strobe light 80 inches above finished floor or 6 inches below the ceiling, whichever is lower.

7. Fire alarm pull stations -- center 42 inches above finished floor.

B. Where the Drawings show outlets as adjacent, align outlet boxes with each other.

C. Use flush mounted outlet boxes in finished areas.

D. Install flush outlet boxes and fittings in walls and ceilings so that front edge is flush with the finished surface. Repair broken wall or ceiling surfaces so no gaps or open spaces exceed 1/8 inch at the edge of boxes or fittings.

E. Do not install flush mounted outlet boxes back-to-back in walls; provide minimum 6 inch separation. Provide 24 inch separations in acoustic rated walls.

F. Install partitions in boxes as follows:

1. Between 277 volt light switches

2. Between 277 volt light switches and 120 volt light switches.

3. Between either 120 volt or 277 volt light switches and low voltage control switches.

G. Install a blank cover plate on each outlet box in which no device is installed.

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Edit 3.4 to match Project requirements.
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3.4 PULL AND JUNCTION BOX INSTALLATION

A. Install pull and junction boxes as shown on the Drawings and as required for splices, taps, wire pulling, equipment connections and compliance with regulatory requirements.

B. Install pull and junction boxes in accessible locations. Position boxes so covers can be removed. Place boxes to maintain headroom. Locate pull boxes and junction boxes above accessible ceilings and in unfinished spaces.

C. Install flush mounted pull and junction boxes so that front edges of boxes are flush with the finished surface. Repair broken wall or ceiling surfaces so no gaps or open spaces exceed 1/8 inch at the edges of boxes.

D. Install underground pull and junction boxes following manufacturer's instructions.

1. Place boxes in locations not subject to high volume vehicle traffic.

2. Install a 6 to 8 inch layer of compacted gravel or crushed stone under the box. Compact gravel or crushed stone to 95% of maximum density according to ASTM D 1557.

3. Set boxes in paved areas with top flush with pavement or sidewalk. Set boxes in unpaved areas with top from 1/2 inch to 1 inch above grade level.

4. Refill and compact soil around boxes to grade level. Compact soil to 95% of maximum density according to ASTM D 1557.

5. For a box with any side longer than 18 inches, install a 10 inch wide, 12 inch deep, fiberglass reinforced concrete ring around the box. Slope top surface of the ring away from the box.

E. Install cover on each box.

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Edit 3.5 to match Project requirements. Delete if not needed.
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3.5 FLOOR BOX INSTALLATION

A. Install floor boxes following manufacturer's instructions.

B. Set height of each box before pour so cover will be flush with the finished floor surface. Determine extent and thickness of wood or stone flooring and adjust height of boxes accordingly. In setting box heights, take into account structural deflection that will occur when

concrete is placed.

C. Adjust floor box top to be flush with the finished floor.

3.6 GROUNDING

A. Ground boxes as required in Section 16450 -- SECONDARY GROUNDING.

3.7 PROTECTION

A. Provide final protection and maintain conditions to ensure that coatings, finishes, and cabinets are without damage or deterioration at final inspection.

B. Repair damage to galvanized finishes with zinc-rich paint recommended by manufacturer.

C. Repair damage to paint finishes with matching touch-up coating recommended by the manufacturer.

3.8 CLEANING

A. Clean foreign matter from interior of boxes before installing wiring, devices, and covers.

END OF SECTION